

# CBU Remote *(master)* User manual



For generating group (1500-1800 rpm)

rev.2 A.A. 16/10/2014  
cod. 43296

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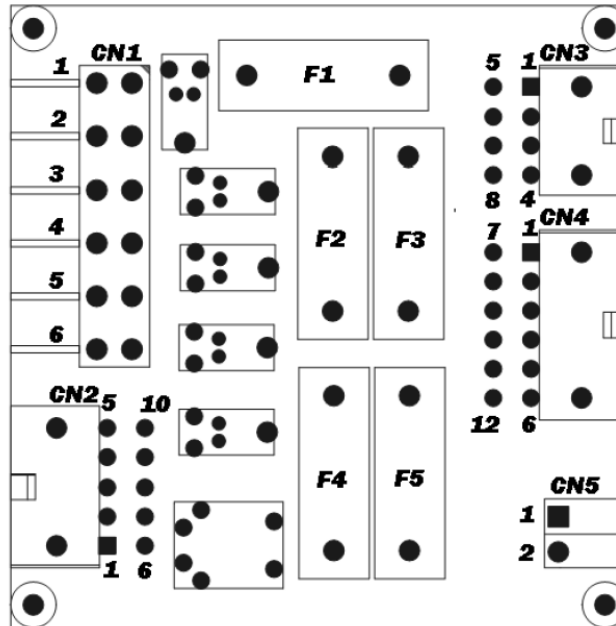
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# Section 1

## Electrical connection

### 1- 1 General chart



**CN1**  
 1 – START relay  
 2 – Positive battery  
 3 – Positive battery  
 4 – Common START relay, Stop solenoid, glow plug, insulated poles  
 5 – Negative battery  
 6 – Negative battery

**CN2**  
 1 – Glow plug relay  
 2 – Stop solenoid relay  
 3 – Insulated poles relay  
 4 – Positive battery  
 5 – Negative battery  
 6 – START relay  
 7 – Input D+  
 8 – Input oil pressure  
 9 – Input engine temperature  
 10 – Input high alternator temperature

Voltage supply:  
 12 Vdc

**CN3**  
 1 – Negative battery  
 2 – Negative battery  
 3 – #  
 4 – #  
 5 – Resistance bridge RS485  
 6 – B RS485  
 7 – A RS485  
 8 – Resistance bridge RS485

**CN4**  
 1 – Input Emergency  
 2 – Input wake up board (- batt)  
 3 – Input manual start (- batt)  
 4 – Negative battery  
 5 – Positive battery  
 6 – Positive external battery  
 7 – Input “stop + reset” (- batt)  
 8 – #  
 9 – RUNS relay  
 10 – ALARMS relay  
 11 – Common relay ALARMS e RUN  
 12 – Negative external battery

**FUSE 5A 5x20 glass**  
 F1 – Output relay Run ((9-CN4)  
 F2 – Output relay Insulated poles (3-CN1)  
 F3 – Output relay Common alarms (10-CN4)  
 F4 – Output relay Glow plugs (1-CN2)  
 F5 – Output Stop solenoid (2-CN2)

Coin cell Battery 3Vdc type BR 1225

## Section 2 Description

### 2-1 Operating modes

#### Starting and stopping the module

Press the On/off pushbutton. Display turns on and indicates that the controller is operating. Controller starts every time in manual mode.

Keep pressed On/Off button to stop.

If buttons are not pressed during 2 minutes when engine is stopped, the controller will turn off itself automatically.

#### Starting and stopping the generator

Manual procedure:

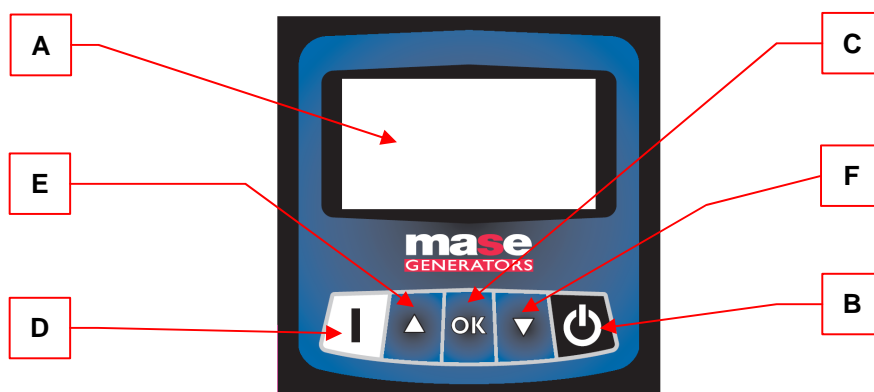
- Starting is possible in one of the following way:

1. Press and keep pressed the START button, the glow-plug preheating starts, and then the engine starts-up, as long as they key is pressed or until the generator is detected as running.
2. Press the remote START (if equipped with remote control), that controls the starter in the same mode as the start button on board module.

- Turning off is possible in one of the following way:

1. Press the STOP button.
2. Press STOP on the remote panel (if equipped with remote control).

### 2-2 Features

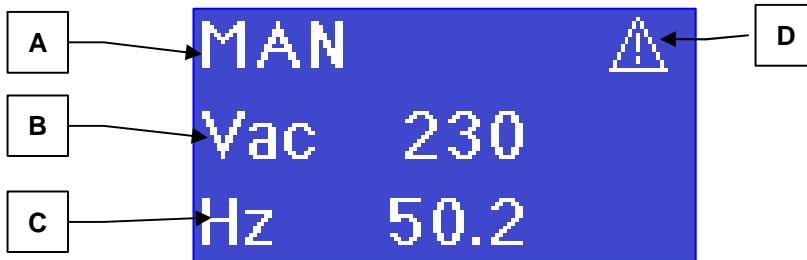


POS.	NAME	DESCRIPTION
A	Display	Backlit, show all functions, values, and alarms from generator
B	ON-OFF/STOP	Pushbutton for turn on/turn off the module. If module is on, pressing this button will turn off the generator (if generator is running). If keep pressed, module will be turned off.
C	OK	Pushbutton for selection of parameters inside menu. In display page, will reset possible alarms.
D	START	Pushbutton for manual starting of generator.
E	Arrow up	Scroll up the menu pages and increase the parameters value.
F	Arrow down	Scroll down the menu pages and decrease the parameters value.

**To enter the programming user menu, press at the same time both arrows buttons. Digit password "0000" to access to user parameters.**

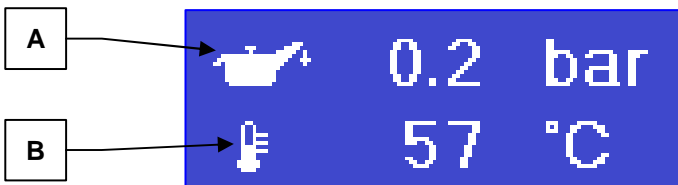
## 2- 3 Display page

### 2- 3.1 Stand-by page



POS.	NAME	DESCRIPTION
A	Starting procedure	Displays the functioning mode. MAN = manual.
B	Voltage L1/N	Displays the voltage between phase and neutral. Min value: 15Vac ( $\pm 2\%$ )
C	Frequency	Displays frequency value (Hz).
D	Alarm icon	A Pop-up page with alarm icon will be opened when an alarm occurs. Pressing button "arrow up" or "arrow down" to close pop-up page, but this did not delete the alarm. Icon alarm still showed on display and remind you that an alarm is actually present. Stating is not allowed until alarm will be reset.

### 2- 3.2 Oil and temperature page



This page is not displayed if analog sensors thresholds are not enable.

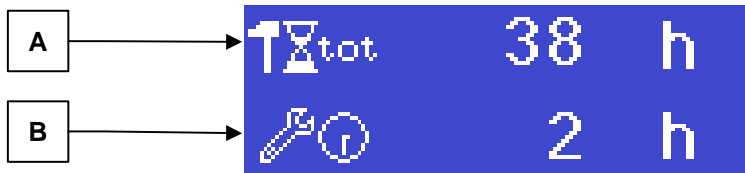
POS.	NAME	DESCRIPTION
A	Oil pressure	Displays the oil pressure. If analog sensor is not fitted, manometer will display 0bar value at engine off and 5bar at engine on.
B	Engine temperature	Displays engine temperature. If analog sensor s not fitted, thermometer will display 30°C and 109°C in alarm condition.

### 2- 3.3 Battery page



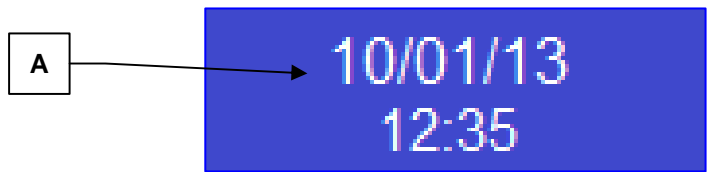
POS.	NAME	DESCRIPTION
A	Voltage on onboard battery pack	Displays the voltage on the battery pack fitted on the generator.
B	Voltage on external battery pack	Displays the voltage on the external battery pack, if connected

### 2- 3.4 Working hours page



POS.	NAME	DESCRIPTION
A	Total working hours	Shows the total amounts of generator working hours
B	Remaining hours to service	Displays the remaining hours to next service. (After the first 50 working hours. Does not shows any alarms).

### 2- 3.5 Date-hour page



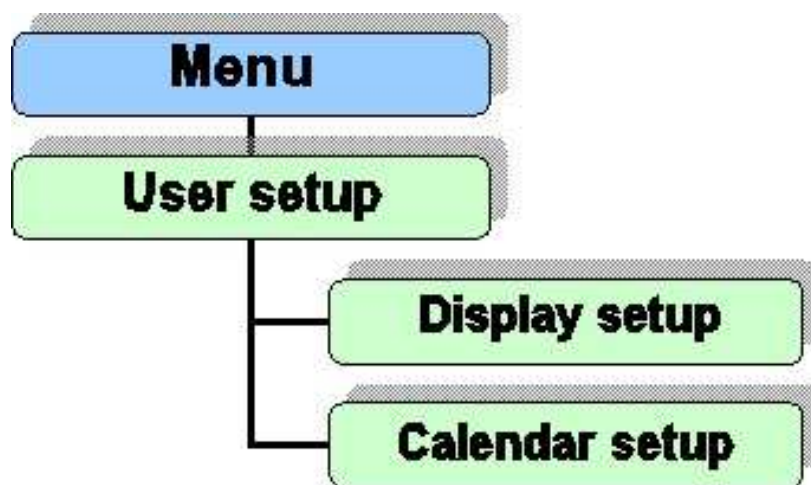
POS.	NAME	DESCRIPTION
A	Date e hour	Displays actual date and hour. Inside module there is a backup coin battery that supply date and hour memory. Battery 3Vdc type IEC 1225

**THERE IS BACKUP BATTERY THAT MANTAIN HOUR AND DATE MEMORY.**

NOTE: Battery is not covered by warranty

## Section 3 User menu

### 3- 1 Access to user setup





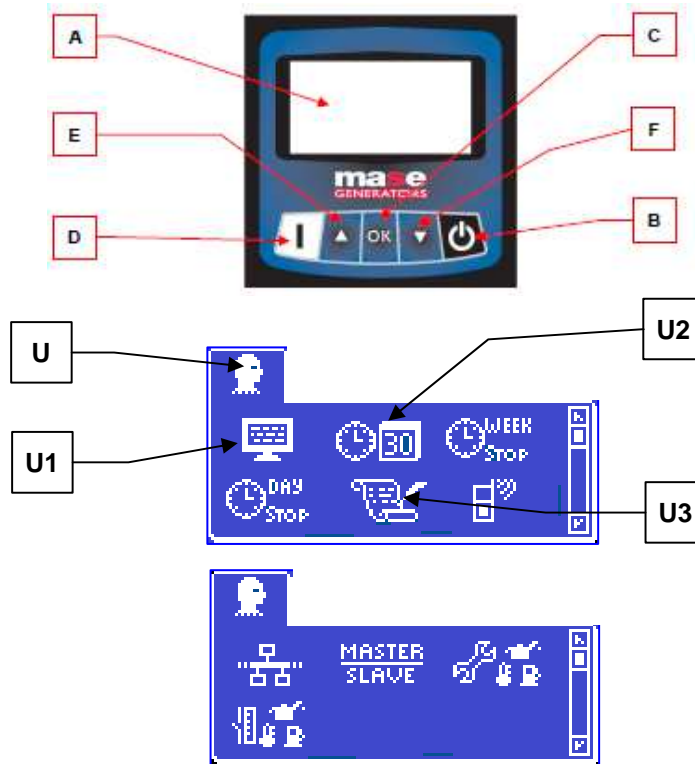
## 3- 2 User setup

Inside user setup is possible to change display contrast, language, calendar, date, and history of alarms:

### -U user page (main setup)

- U1 display set up (subdirectory)
- U2 calendar set up (subdirectory)
- U3 alarms history (subdirectory)

**Warning! do not change parameters of icons that are not indicated on this manual**



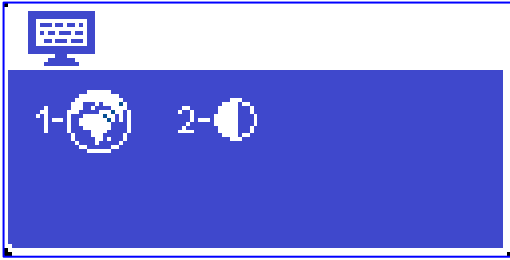
**Access to user menu** from main page when turn on:

- Press in the same time and then release **arrow pushbuttons** (E+F).
- display will show **0000**, press and release **OK** pushbutton (C), user page will open with icon highlighted (U).
- Press and release **OK** pushbutton for entering inside user page and have access to other subdirectories.
- Use **arrow pushbuttons** (E or F) to select the icon U1 / U2 / U3, press **OK** pushbutton to have access to other subdirectories.

**Exit from user menu**

- Exit from subdirectories, pressing the **On-Off/Stop** (B) pushbutton.
- Enter to user page pressing again **On-Off/Stop** (B) pushbutton, the icon (U) will be highlighted.
- Press and release at the same time the **arrow pushbuttons** (E+F).

### 3- 2.1 Language and contrast setup



POS.	NAME	DESCRIPTION	RANGE VALUES	DEFAULT VALUES
1	LANGUAGE	Select the language of the module. Available language: English, Italian, Russian, French	Italian English Russian French	English
2	CONTRAST	Set the contrast of the display. Then will automatically managed by controller.	10-40	21

#### Set up language and contrast

- Select the icon through arrow pushbuttons (E or F), press and release **OK** pushbutton.
- **Language:** Select through arrow pushbuttons the preferred icon language. Press and release the OK pushbutton to confirm and exit from subdirectory. For exit without saving press and release On-Off/Stop pushbutton (B).
- **Contrast:** Select through arrow pushbuttons the preferred contrast. Press and release the OK pushbutton to confirm and exit from subdirectory. For exit without saving press and release On-Off/Stop pushbutton (B).
- For exit from sub directory, press and release On-Off/Stop (B) pushbutton more times, until user page icon (U) is highlighted. Press and release at the same time the **arrow pushbuttons** (E+F) for exiting from menu.

### 3- 2.2 Calendar setup



POS.	NAME	DESCRIPTION	RANGE VALUES	DEFAULT VALUES
1	DATE	Set the date	[day]-[month]-[year]	01/01/11
2	HOUR	Set the time	[hour]:[minutes]	00:00

#### Calendar set up















- Select icon with arrow pushbuttons (E or F), press and release the **OK** pushbutton.
- **Date:** Set the date using arrow pushbuttons. Press and release START pushbutton (D) for browsing the menu. Press and release the OK pushbutton to confirm and exit from sub directory. For exit without saving press and release On-Off/Stop pushbutton (B).
- **Hour:** Set the date using arrow pushbuttons. Press and release START pushbutton (D) for browsing the menu. Press and release the OK pushbutton to confirm and exit from sub directory. For exit without saving press and release On-Off/Stop pushbutton (B).
- For exit from sub directory, press and release On-Off/Stop (B) pushbutton more times, until user page icon (U) is highlighted. Press and release at the same time the **arrow pushbuttons** (E+F) for exiting from menu.



The events list records the alarm and the working time that it occurred, until 10 events maximum.

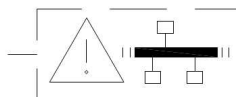
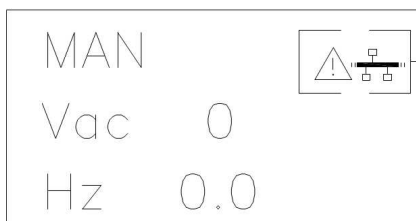
- Select icon through arrow pushbuttons (E or F), press and release **OK** pushbutton.
- Use **arrow pushbuttons** (E+F) for browsing through events.
- For exit from sub directory, press and release On-Off/Stop (B) pushbutton more times, until user page icon (U) is highlighted. Press and release at the same time the **arrow pushbuttons** (E+F) for exiting from menu.

### 3- 2.4 Alarm chart

Alarm code	Symbol	Alarm name	Description
0		Emergency stop	Means that the emergency pushbutton is pressed.
2		Alternator failure c.b. D+	If enable, means that battery charger alternator is not detected at engine running D+
3		Missing engine stop	Means that, after engine is stopped, the electronic board detects active parameters as the engine is still running.
4		Mechanical failure	If generator is running, means that all detected parameters are simultaneously missing.
9		Pre-alarm analog temperature	Means that the detected temperature by analog sensor rised up over the setted pre-alarm limit.
10		High engine analog temperature	Means that the detected temperature by analog sensor rised up over the setted alarm limit.
12		Pre-alarm analog oil pressure	Means that the detected oil pressure by analog sensor is lower than the setted pre-alarm limit.
13		Analog low pressure oil	Means that the detected oil pressure by analog sensor is lower than the setted alarm limit.
16		High level battery	Means that the battery voltage is too high.
17		Low level battery	Means that the battery voltage is too low.
20		Generator: low frequency	Means that the generator frequency is too low.
21		Generator: high frequency	Means that the generator frequency is too high.
22		Generator: low voltage	Means that the generator voltage is lower than the setted alarm thresold.
23		Generator: high voltage	Means that the generator voltage is higher than the setted alarm thresold.

**Communication Error Alarm appear on the CBU MASTER display, if there is not communication between CBU Master and Slave**

Master display:



Communication Error

# Section 4

## Second CBU controller

### 4.1 Connect a second CBU controller

It's possible to connect an additional CBU controller (MASTER) to the main generator CBU controller (SLAVE), in order to drive and monitor the generator from 2 different positions.

CBU MASTER sends and receives data from CBU SLAVE controller that directly control the generator. CBU MASTER can not control the generator without CBU SLAVE.

The two controllers works via 485 mode bus protocol, keeping the same features of control and command.

At first power on, CBU MASTER self-configures to the twin Slave.

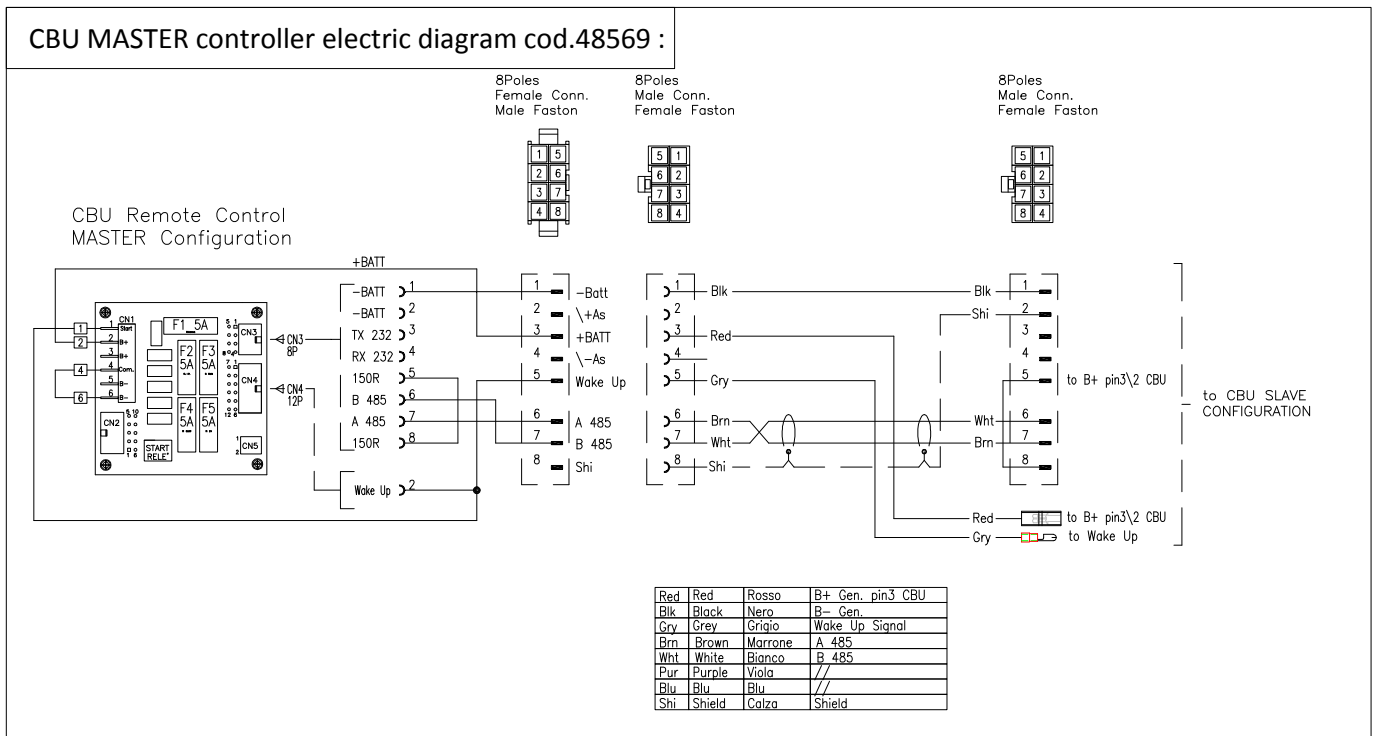
When turn on CBU MASTER, CBU SLAVE also turns on, but not viceversa. You can still turn on at all times CBU MASTER.

Disconnect battery before doing wiring connections.

Have the access to rear side of CBU SLAVE, locate the connection points.

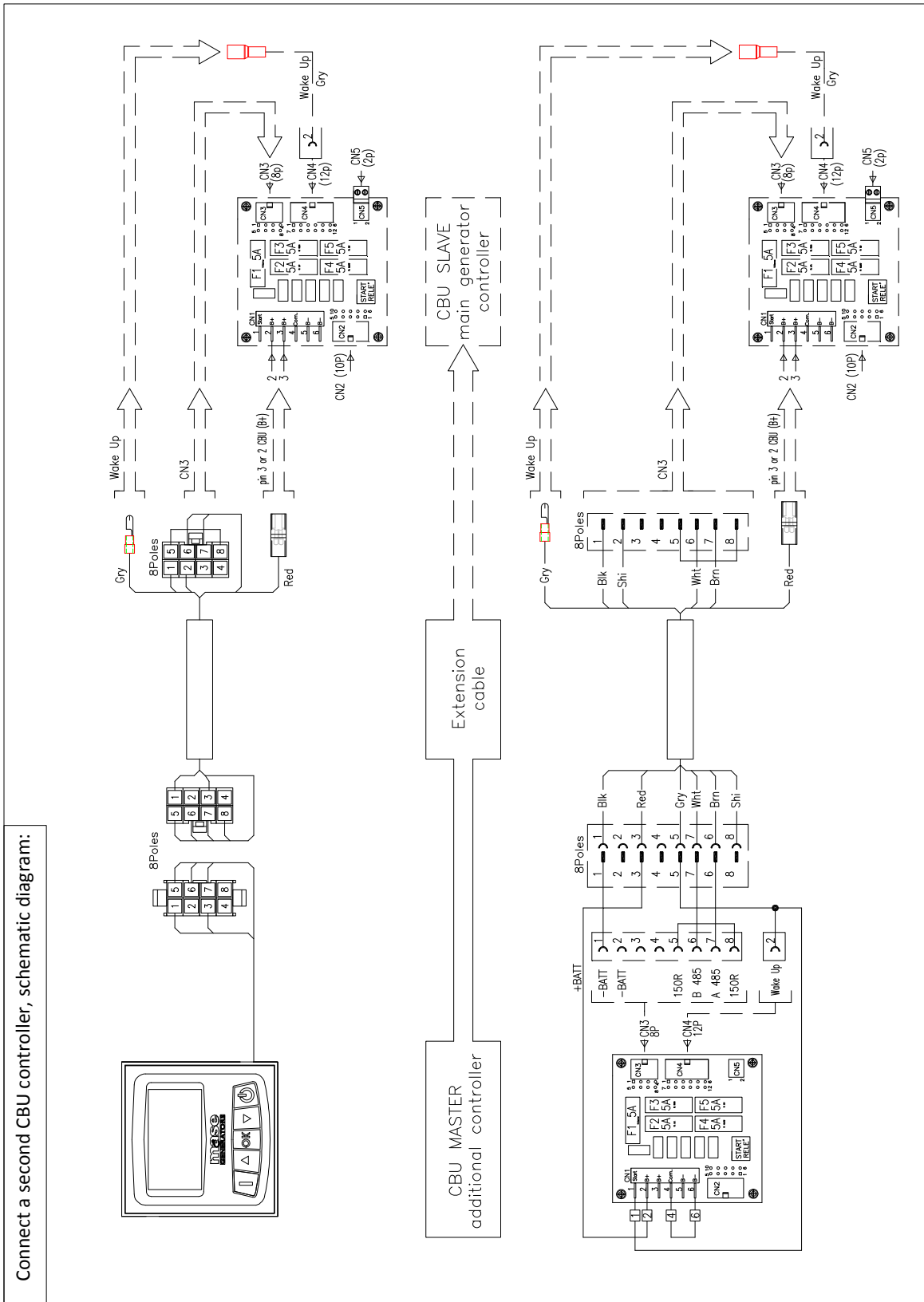
Connect wirings according to the reference diagram (CBU SLAVE diagram does not show all the cables connected to it, refer to the diagram of your machine if necessary).

### 4.2 Wiring diagram



### 4.3 Schematic diagram

Connect a second CBU controller, schematic diagram:

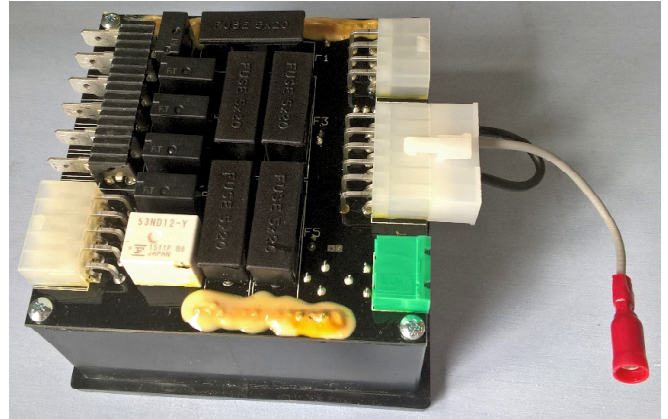


# HOW TO CONNECT A SECOND CBU MODULE (USUALLY A REMOTE CBU) TO THE FIRST PROVIDED CBU (USUALLY CBU ONBOARD GENERATOR) - PHOTO SEQUENCE -

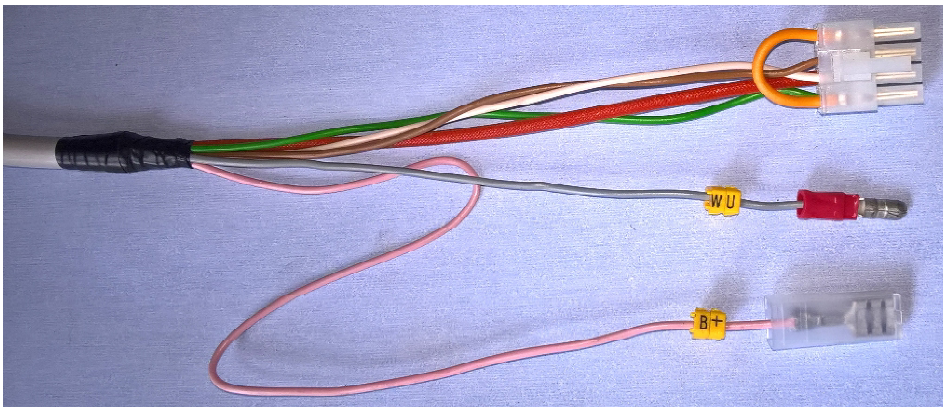
**REMOTE CBU  
(CBU + CABLE)**



**ONBOARD CBU  
(REAR VIEW)**



**Detail of cable terminals:**

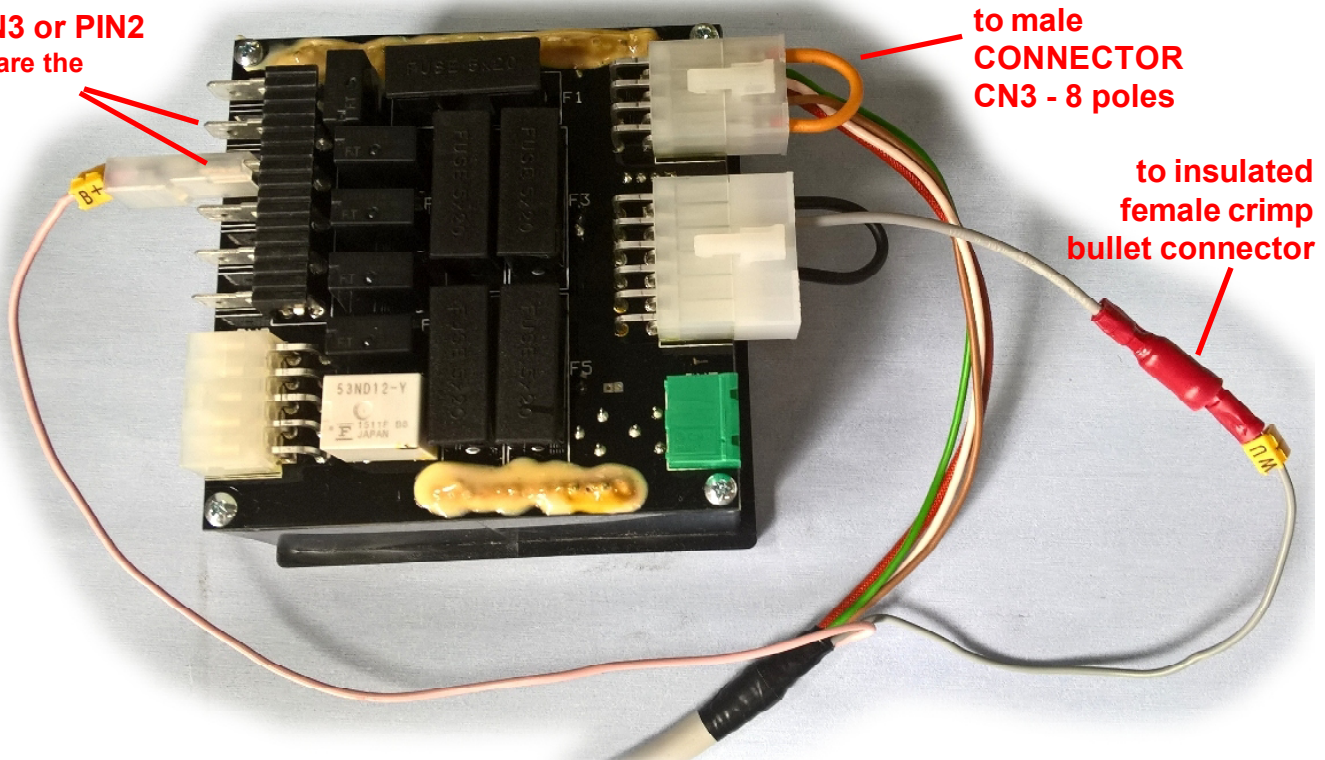


**Connect the above terminals to the first CBU, as shown below.**

**to PIN3 or PIN2  
(They are the same)**

**to male  
CONNECTOR  
CN3 - 8 poles**

**to insulated  
female crimp  
bullet connector**

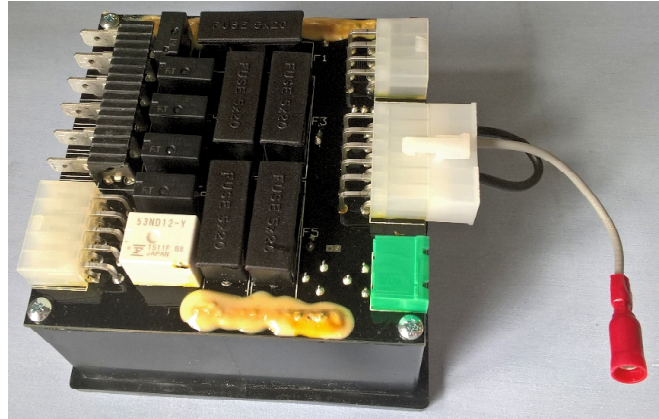


**COME COLLEGARE UN SECONDO MODULO CBU (SOLITAMENTE UNA CBU A DISTANZA)  
AL PRIMO FORNITO (USUALMENTE INSTALLATA A BORDO GRUPPO)  
- SEQUENZA FOTO -**

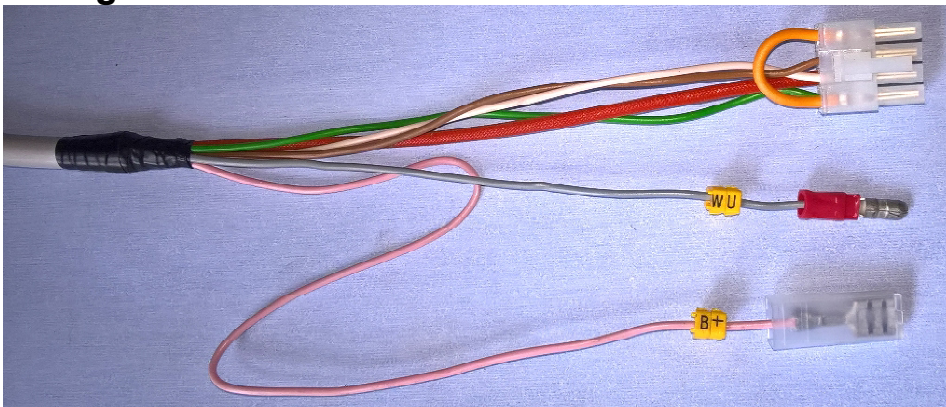
**CBU A DISTANZA  
(CBU + CAVO)**



**CBU A BORDO GRUPPO  
(VISTA DAL RETRO)**



**Dettaglio dei terminali del cavo:**

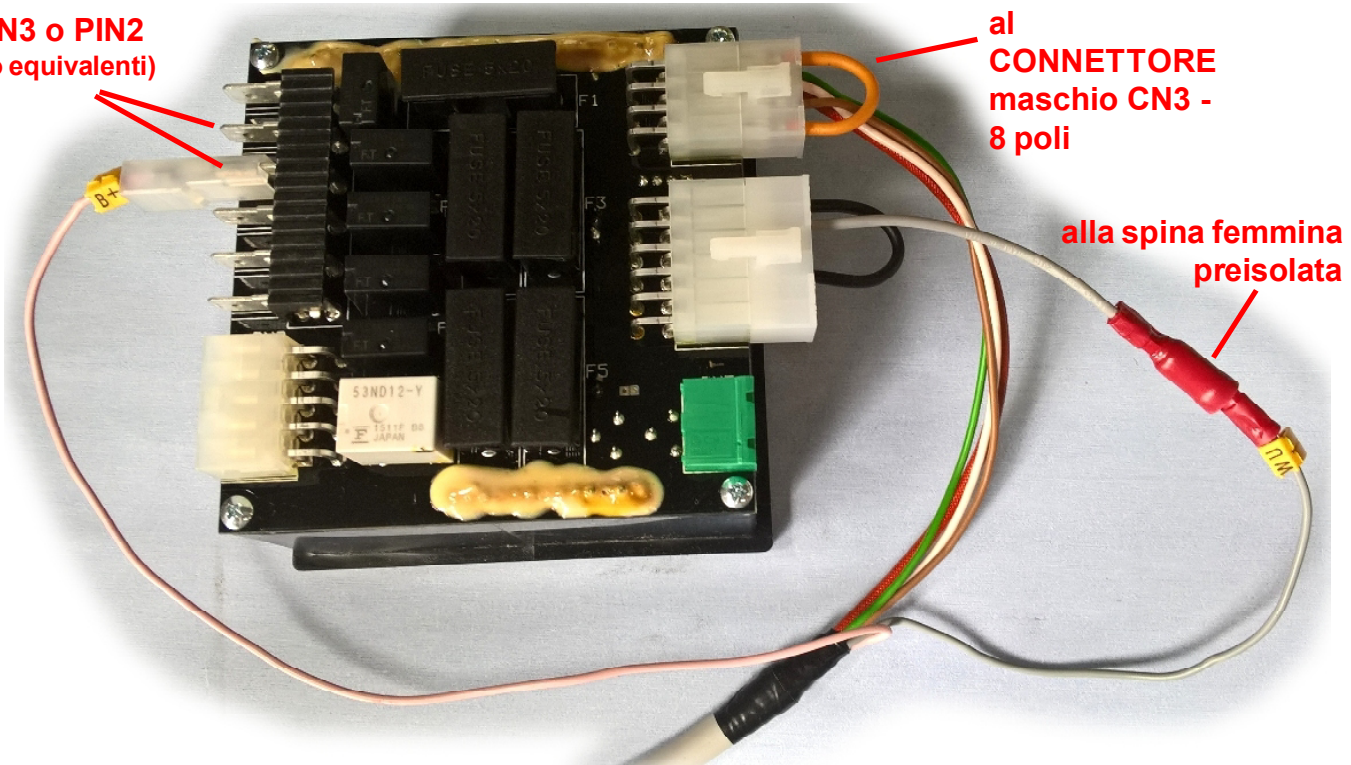


**Collegare i terminali indicati sopra alla prima CBU, come indicato nella figura seguente.**

**al PIN3 o PIN2  
(sono equivalenti)**

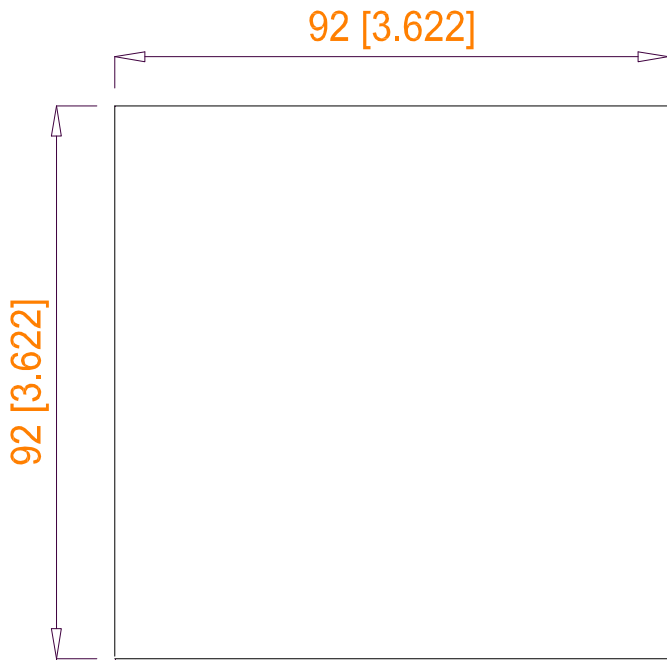
**al  
CONNETTORE  
maschio CN3 -  
8 poli**

**alla spina femmina  
preisolata**





## 4.4 Dimensions





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